



## ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

International Specialists in the Environment

135801

May 7, 1991

Maureen O'Mara  
On-Scene Coordinator  
U.S. EPA  
230 South Dearborn 5HS-12  
Chicago, IL 60604

RE: Waukegan Tar Pit Sample Analytical Data

Dear Ms. O'Mara,

On February 27, March 25 and 26, 1991 Ecology and Environment (E & E) Technical Assistance Team (TAT) was tasked to collect samples at the Waukegan Tar Pit (WTP) site, in order to document the threat of possible contaminants at the site. One sample was collected on February 27 from the visible tar pit (TS-4). The samples was to be analyzed for volatile and semi-volatile compounds, TCLP metals, and flash-point, by Analytical and Biological Laboratories, Inc., Farmington Hills, Michigan. The laboratory failed to analyze this sample correctly for volatile and semi-volatile compounds. Two additional samples were then collected by TAT on March 25 and 26. A sample from the visible tar pit was again obtained (TS-3), and the other (B-19) was taken at a selected interval during soil boring activities. The samples were analyzed for the same parameters by the same laboratory.

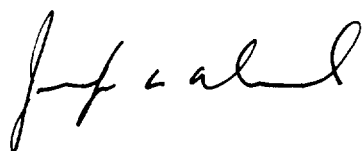
The sample from the visible tar pit (TS-3) contained elevated levels of the volatile compounds ethylbenzene, toluene, xylene, and benzene, at 331,000, 559,000, 510,500 and 336,000 ppb, respectively. In addition, semi-volatile compounds acenaphthylene, benzo (1) anthracene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene were also detected at elevated levels. TCLP metal analysis was not repeated on this sample, however analysis of the initial sample (TS-4) gave no significant elevated levels for the analyzed metals. The flash-point of sample TS-4 was 99 F.

The soil boring sample (B-19) contained elevated levels of the volatile compounds ethylbenzene, toluene, xylene, and benzene at 2,770, 1,530, 2,520, and 570 ppb, respectively. Semi-volatile analysis revealed elevated levels of a number of compounds, similar to those found in the visible tar pit sample (TS-3). TCLP metal analysis gave no significant levels for the analyzed metals. This sample did not have a flash-point under 200 F.

Quality control review of the above data revealed the laboratory was in violation of the 14 day holding time for volatile compound analysis. Therefore, the levels of volatile compounds detected in each of the samples represents a minimum detection level.

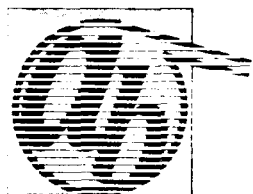
If you have any questions concerning the above data analysis and quality control review, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Wendel", with a small dash to the left.

Jennifer L. Wendel  
Environmental Chemist

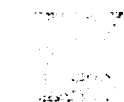
att: Analytical Data package  
Quality Control review



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ECOLOGY & ENVIRONMENT  
111 WEST JACKSON BLVD.  
12TH FLOOR  
CHICAGO, IL 60604  
JERYL KOLB

SAMPLE NO: 54600

SAMPLE DESCRIPTION: B-19 10-12

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

#### TCLP

#### Metals

##### Arsenic

<0.053 n v mg/l

##### Barium

0.398 v mg/l

##### Cadmium

0.017 v mg/l

##### Chromium

0.015 v mg/l

##### Copper

0.028 v mg/l

##### Lead

<0.042 n v mg/l

##### Mercury

<0.025 n v mg/l

##### Selenium

<0.075 n v mg/l

##### Silver

<0.050 n v mg/l

##### Zinc

0.635 v mg/l

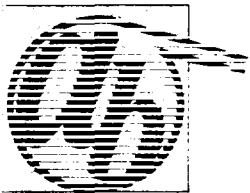
#### ACID EXTRACTABLES

#### LEVEL OF DETECTION

5

ppm

*Janet*  
4/25/91



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WAUKEGAN TAR PIT

2-Chlorophenol	None Detected	us	Ja
2,4-Dichlorophenol	None Detected	us	Ja
2,4-Dimethylphenol	None Detected	us	Ja
4,6-Dinitro-o-cresol	None Detected	us	Ja
2,4-Dinitrophenol	None Detected	us	Ja
2-Nitrophenol	None Detected	us	Ja
4-Nitrophenol	None Detected	us	Ja
P-Chloro-m-cresol	None Detected	us	Ja
Pentachlorophenol	None Detected	us	Ja
Phenol	None Detected	us	Ja
2,4,6-Trichlorophenol	None Detected	us	Ja

BASE NEUTRALS

LEVEL OF DETECTION

5

Acenapthene

86

ppm

ppm



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WAUKEGAN TAR PIT

Acenaphthylene	
66.5	ppm
Anthracene	
94.5	ppm
Benzidine	
None Detected	
Benzo (1) Anthracene	
78	ppm
Benzo (a) Pyrene	
35	ppm
3,4-Benzofluoranthene	
75	ppm
Benzo (ghi) Perylene	
14	ppm
Benzo (k) Fluoranthene	
75	ppm
Bis(2-Chloroethoxy)Methane	
None Detected	
Bis(2-Chloroethyl)Ether	
None Detected	
Bis(2-Chloroisopropyl)Ether	
None Detected	
Bis(2-Ethylhexy)Phthalate	
None Detected	
4-Bromophenyl Phenyl Ether	
None Detected	
Butyl Benzyl Phthalate	
None Detected	



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JERYL KOLS

SAMPLE NO: 54600

SAMPLE DESCRIPTION: B-19 10-12

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RELEASED: 04-15-91

WAUKEGAN TAR PIT

2-Chloronapthalene

None Detected

4-Chlorophenyl Phenyl Eth.

None Detected

Chrysene

64.5

ppm

Dibenzo(a,h)Anthracene

9

ppm

1,2-Dichlorobenzene

None Detected

1,3-Dichlorobenzene

None Detected

1,4-Dichlorobenzene

None Detected

3,3-Dichlorobenzidine

None Detected

Diethyl Phthalate

None Detected

Dimethyl Phthalate

None Detected

Di-N-Butyl Phthalate

None Detected

2,4-Dinitrotoluene

None Detected

2,6-Dinitrotoluene

None Detected

Di-N-Octyl Phthalate

None Detected



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CHICAGO, IL 60604  
JERYL KOLB

SAMPLE NO: 54600

SAMPLE DESCRIPTION: B-19 10-12

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

1,2-Diphenylhydrazine	
None Detected	
Fluoranthene	
95	ppm
Fluorene	
52	ppm
Hexachlorobenzene	
None Detected	
Hexachlorobutadiene	
None Detected	
Hexachlorocyclopentadiene	
None Detected	
Hexachloroethane	
None Detected	
Indeno (1,2,3-cd) Pyrene	
10	ppm
Isophorone	
None Detected	
Naphthalene	
140	ppm
Nitrobenzene	
None Detected	
N-Nitrosodimethylamine	
None Detected	
N-Nitrosodi-N-Propylamine	
None Detected	
N-Nitrosodiphenylamine	
None Detected	



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JERYL KOLB

SAMPLE NO: 54600

SAMPLE DESCRIPTION: B-19 10-12

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

Phenanthrene		
275		ppm
Pyrene		
171		ppm
1,2,4-Trichlorobenzene		
None Detected		
Ignitability		
No flash up to 200 deg.		F
LEVEL OF DETECTION		
SOLVENT SCAN	250	ppb
Acetone		
None Detected		
n-Butyl Alcohol		
None Detected		
Carbon Disulfide		
None Detected		
Carbon Tetrachloride		
None Detected		
Chlorobenzene		
None Detected		
Cyclohexanone		
None Detected		
1,2-Dichlorobenzene		
None Detected		
Ethyl Acetate		
None Detected		
Ethylbenzene		
2,770		ppb



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ECOLOGY & ENVIRONMENT  
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SAMPLE NO: 54600

SAMPLE DESCRIPTION: B-19 10-12

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

Ethyl Ether  
None Detected *uv*  
Isobutanol  
None Detected *uv*  
Methanol  
None Detected *uv*  
Methylene Chloride  
None Detected *uv*  
Methyl Ethyl Ketone  
None Detected *uv*  
Methyl Isobutyl Ketone  
None Detected *uv*  
Pyridine  
None Detected *uv*  
Tetrachloroethylene  
None Detected *uv*  
Toluene  
1,530 *✓*  
1,1,1-Trichloroethane  
None Detected *uv*  
1,1,2-Trichloro-  
None Detected *uv*  
1,2,2-trifluoroethane  
None Detected *uv*  
Trichloroethylene  
None Detected *uv*  
Trichlorofluoromethane  
None Detected *uv*

ppb

*Small  
4/25/91*



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RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

Xylene

2,520 ✓

ppb

2-Butanone

None Detected ✓

Chlorinated Fluorocarbons

None Detected ✓

ortho-dichlorobenzene

None Detected ✓

1,1,2-Trichloroethane

None Detected ✓

Cresols

None Detected ✓

Cresylic Acid

None Detected ✓

Nitrobenzene

None Detected ✓

Benzene

570 ✓

ppb

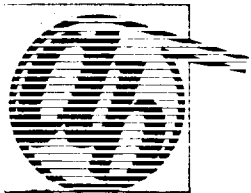
2-Ethoxy Ethanol

None Detected ✓

2-Nitropropane

None Detected ✓

4/25/91



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CHICAGO, IL 60604  
JERYL KOLB

Page 1

SAMPLE NO: 54599

SAMPLE DESCRIPTION: SAMPLE TS-3

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

#### ACID EXTRACTABLES

##### LEVEL OF DETECTION

5

ppm

2-Chlorophenol	None Detected	nd	Ja.
2,4-Dichlorophenol	None Detected	nd	Ja.
2,4-Dimethylphenol	None Detected	nd	Ja.
4,6-Dinitro-o-cresol	None Detected	nd	Ja.
2,4-Dinitrophenol	None Detected	nd	Ja.
2-Nitrophenol	None Detected	nd	Ja.
4-Nitrophenol	None Detected	nd	Ja.
p-Chloro-m-cresol	None Detected	nd	Ja.
Pentachlorophenol	None Detected	nd	Ja.
Phenol	None Detected	nd	Ja.
2,4,6-Trichlorophenol	None Detected	nd	Ja.

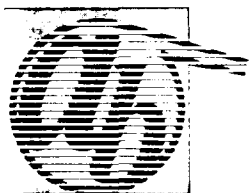
#### BASE NEUTRALS

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12TH FLOOR  
CHICAGO, IL 60604  
JERYL KOLB

SAMPLE NO: 54599

SAMPLE DESCRIPTION: SAMPLE TS-3

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

LEVEL OF DETECTION

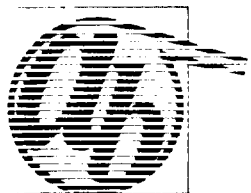
5	ppm
Acenaphthene	
None Detected	
Acenaphthylene	
10,500	ppm
Anthracene	
None Detected	
Benzidine	
None Detected	
Benzo (1) Anthracene	
5,500	ppm
Benzo (a) Pyrene	
None Detected	
3,4-Benzofluoranthene	
None Detected	
Benzo (ghi) Perylene	
None Detected	
Benzo (k) Fluoranthene	
None Detected	
Bis(2-Chloroethoxy)Methane	
None Detected	
Bis(2-Chloroethyl)Ether	
None Detected	
Bis(2-Chloroisopropyl)Ether	
None Detected	
Bis(2-Ethylhexy)Phthalate	
None Detected	

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CHICAGO, IL 60604  
JERYL KOLS

SAMPLE NO: 54599

SAMPLE DESCRIPTION: SAMPLE TS-3

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

4-Bromophenyl Phenyl Ether  
None Detected  
Butyl Benzyl Phthalate  
None Detected  
2-Chloronaphthalene  
None Detected  
4-Chlorophenyl Phenyl Eth.  
None Detected  
Chrysene  
None Detected  
Dibenzo(a,h)Anthracene  
None Detected  
1,2-Dichlorobenzene  
None Detected  
1,3-Dichlorobenzene  
None Detected  
1,4-Dichlorobenzene  
None Detected  
3,3-Dichlorobenzidine  
None Detected  
Diethyl Phthalate  
None Detected  
Dimethyl Phthalate  
None Detected  
Di-N-Butyl Phthalate  
None Detected  
2,4-Dinitrotoluene  
None Detected

#### CERTIFICATIONS

NATIONAL SANITATION FOUNDATION  
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UNITED STATES FOOD AND DRUG ADMINISTRATION  
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RESEARCH FACILITY U.S. DEPARTMENT OF AGRICULTURE

#### CREDENTIALS


FELLOW - AMERICAN INSTITUTE OF CHEMISTS  
DIPLOMAT - AMERICAN BOARD OF BIOANALYSIS  
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Analytic & Biological  
Laboratories, Inc.

2435 DOPLEX CIRCLE  
FARMINGTON HILLS, MICHIGAN 48335

(313) 477-6666  
FAX (313) 477-4604

  
**CERTIFICATIONS**  
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EPA QUALITY ASSURANCE PROGRAM  
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ECOLOGY & ENVIRONMENT  
111 WEST JACKSON BLVD.  
12TH FLOOR  
CHICAGO, IL 60604  
JERYL KOLB

SAMPLE NO: 54599

SAMPLE DESCRIPTION: SAMPLE TS-3

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

2,6-Dinitrotoluene	
None Detected	
Di-N-Octyl Phthalate	
None Detected	
1,2-Diphenylhydrazine	
None Detected	
Fluoranthene	
6,500	ppm
Fluorene	
6,500	ppm
Hexachlorobenzene	
None Detected	
Hexachlorobutadiene	
None Detected	
Hexachlorocyclopentadiene	
None Detected	
Hexachloroethane	
None Detected	
Indeno (1,2,3-cd) Pyrene	
None Detected	
Isophorone	
None Detected	
Naphthalene	
21,500	ppm
Nitrobenzene	
None Detected	
N-Nitrosodimethylamine	
None Detected	



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ECOLOGY & ENVIRONMENT  
111 WEST JACKSON BLVD.  
12TH FLOOR  
CHICAGO, IL 60604  
JERYL KOLB

SAMPLE NO: 54599

SAMPLE DESCRIPTION: SAMPLE TS-3

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

N-Nitrosodi-N-Propylamine

None Detected

N-Nitrosodiphenylamine

None Detected

Phenanthrene

17,500

ppm

Pyrene

12,000

ppm

1,2,4-Trichlorobenzene

None Detected

LEVEL OF DETECTION

SOLVENT SCAN

2,500

ppb

Acetone

None Detected

n-Butyl Alcohol

None Detected

Carbon Disulfide

None Detected

Carbon Tetrachloride

None Detected

Chlorobenzene

None Detected

Cyclohexanone

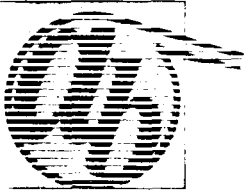
None Detected

1,2-Dichlorobenzene

None Detected

Ethyl Acetate

None Detected



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ECOLOGY & ENVIRONMENT  
111 WEST JACKSON BLVD.  
12TH FLOOR  
CHICAGO, IL 60604  
JERYL KOLS

SAMPLE NO: 54599

SAMPLE DESCRIPTION: SAMPLE TS-3

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

Ethylbenzene

331,000 ✓

ppb

Ethyl Ether

None Detected ✓

Isobutanol

None Detected ✓

Methanol

None Detected ✓

Methylene Chloride

None Detected ✓

Methyl Ethyl Ketone

None Detected ✓

Methyl Isobutyl Ketone

None Detected ✓

Pyridine

None Detected ✓

Tetrachloroethylene

None Detected ✓

Toluene

559,000 ✓

ppb

1,1,1-Trichloroethane

None Detected ✓

1,1,2-Trichloro-

None Detected ✓

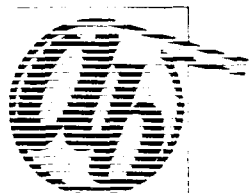
1,2,2-trifluoroethane

None Detected ✓

Trichloroethylene

None Detected ✓

25/91



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ECOLOGY & ENVIRONMENT  
111 WEST JACKSON BLVD.  
12TH FLOOR  
CHICAGO, IL 60604  
JERYL KOLB

SAMPLE NO: 54599

SAMPLE DESCRIPTION: SAMPLE TS-3

RECEIVED: 03-28-91

RELEASED: 04-15-91

WAUKEGAN TAR PIT

Trichlorofluoromethane

None Detected

Xylene

510,500

ppb

2-Butanone

None Detected

Chlorinated Fluorocarbons

None Detected

ortho-dichlorobenzene

None Detected

1,1,2-Trichloroethane

None Detected

Cresols

None Detected

Cresylic Acid

None Detected

Nitrobenzene

None Detected

Benzene

336,000

ppb

2-Ethoxy Ethanol

None Detected

2-Nitropropane

None Detected



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ECOLOGY & ENVIRONMENT  
111 WEST JACKSON BLVD.  
12TH FLOOR  
CHICAGO, IL 60604  
JERYL KOLB

SAMPLE NO: 53252

SAMPLE DESCRIPTION: TS-4 COMPOSITE

RECEIVED: 03-01-91

RELEASED: 03-13-91

PROJECT NAME: WAUKEGAN TAR PIT  
PROJECT NO: 2T1051

2,4,6 Trichlorophenol  
N.D.

2,4 Dinitrochlorobenzene  
N.D.

Hexachlorobenzene  
N.D.

Hexachlorobutadiene  
N.D.

Hexachloroethane  
N.D.

Nitrobenzene  
N.D.

Metals

Arsenic  
<0.053 mg/l

Barium  
0.006 mg/l

Cadmium  
<0.003 mg/l

Chromium  
<0.007 mg/l

Copper  
0.006 mg/l

**ANALYTIC & BIOLOGICAL LABORATORIES, INC.**

**Francis B. McLaughlin, FAIC**  
**Director of Laboratories**



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Page 4

ECOLOGY & ENVIRONMENT  
111 WEST JACKSON BLVD.  
12TH FLOOR  
CHICAGO, IL 60604  
JERYL KOLB

SAMPLE NO: 53252

SAMPLE DESCRIPTION: TS-4 COMPOSITE

RECEIVED: 03-01-91

RELEASED: 03-13-91

PROJECT NAME: WAUKEGAN TAR PIT  
PROJECT NO: 2T1051

Lead	<0.042	mg/l
Mercury	<0.025	mg/l
Selenium	<0.075	mg/l
Silver	<0.050	mg/l
Zinc	0.139	mg/l
Ignitability	Flashed at 99 deg.	F

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**Francis B. McLaughlin, FAIC**  
**Director of Laboratories**



## ecology and environment, inc.

111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415

International Specialists in the Environment

### M E M O R A N D U M

DATE: April 23, 1991  
TO: Jennifer Wendel, Project Manager, E & E, Chicago, IL  
FROM: Jane Malkin, TAT-Chemist, E & E, Chicago, IL *Jan*  
THRU: Patrick Zwilling, TAT-Chemist, E & E, Chicago, IL *Bes for p2*  
SUBJ: Volatile and Semi-Volatile Organic Data Quality Assurance Review, Waukegan Tar Pit, Waukegan, IL.

REF: Analytical TDD: T059102808      Project TDD: T059101019  
Analytical PAN: EIL0730AAA      Project PAN: EIL0730VAA

The data quality assurance review of 2 soil samples collected from the Waukegan Tar Pit site in Waukegan, Illinois has been completed. Analysis for the volatile organics (EPA method 8240), and the analysis for the semi-volatile organics (EPA method 8270) was performed by Analytic & Biological Laboratories, Inc., Farmington Hills, Michigan.

The 2 samples were numbered: B-19 and TS-3

#### Data Qualifications:

##### I Holding Time:

The samples were collected on March 26, 1991 and analyzed by April 12, 1991. This met the holding time requirements of 40 days for semi-volatiles, but did not meet the required holding time of 14 days for volatiles. The positive results for the volatile organic analysis for both samples were flagged (J), and the non-detect results were flagged (UJ) as estimated.

##### II GC/MS Tuning: Data not available.

##### III Calibration

Specific calibration information was not included with the data package, however it was verified from the information given on the sample analysis reports that volatile and semi-volatile instrument calibration was performed immediately prior to sample analysis.

IV Method Blank: Acceptable

One method blank was analyzed with the sample for each analysis. There were no contaminants found in the blanks above the contract required detection limit (CRDL).

V Surrogate Recovery:

For the sample numbered B-19, the surrogate recoveries were all within the control limits of 75 - 125%. No data was available for the sample numbered TS-3.

VI Matrix Spike/Matrix Spike Duplicates: Data not available.

VII Internal standard Performance: Acceptable

All internal standard (IS) area counts were all within the prescribed control limits of -50% to +100%.

VIII Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in "Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses" (February, 1988).

Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the contract required detection limits or quality control criteria were not met.

U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.



# ecology and environment, inc.

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International Specialists in the Environment

## MEMORANDUM

DATE: April 23, 1991  
TO: Jennifer Wendel, Project Manager, E & E, Chicago, IL  
FROM: Jane Malkin, TAT-Chemist, E & E, Chicago, IL *for*  
THRU: Patrick Zwilling, TAT-Chemist, E & E, Chicago, IL *for*  
SUBJ: Inorganic Data Quality Assurance Review, Waukegan Tar Pit,  
Waukegan, IL  
REF: Analytical TDD: T059102808 Project TDD: T059101019  
Analytical PAN: EIL0730AAA Project PAN: EIL0730VAA

The data quality assurance review of 1 soil sample collected from the Waukegan Tar Pit site in Waukegan, Illinois has been completed. Analysis for TCLP metals (EPA method 6010) was performed by Analytical & Biological Laboratories, Inc., Farmington Hills, Michigan.

The sample was numbered: B-19

### Data Qualifications:

I Sample Holding Time: Acceptable

The sample was collected on March 26, 1991 and was analyzed on April 4, 1991, which met the required holding time of 6 months for inorganics.

II Calibration: Data not available.

III Blanks: Data not available.

IV Interference Check Sample Analysis: Data not available.

VI Specific Sample Results

A. Duplicate Sample Analysis: Data not available.

B. Spike Sample Analysis: Data not available.

## VII Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in "Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses" (February, 1988) and the Federal Register 40 CFR Part 261.

In the absence of data to satisfy the above criteria mentioned above, the positive results for TCLP metals (As, Ba, Cd, Cr, Cu, Pb, Hg, Se, Ag, and Zn) were flagged (J) and the non detect were flagged as (UJ) as estimated. The data are acceptable for use with the above stated data qualifications.

### Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the contract required detection limits or quality control criteria were not met.

U -The material was analyzed for but was not detected. The associated numerical value is the sample detection limit or the adjusted sample detection limit.



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## MEMORANDUM

DATE: March 22, 1991  
TO: Jennifer Wendel, Project Manager, E & E, Chicago, IL  
FROM: Patrick Zwilling, TAT-Chemist, E & E, Chicago, IL  
THRU: Brenda Jones, TAT-Chemist, E & E, Chicago, IL  
SUBJ: **TCLP Volatile and Semi-Volatile Organic, and TCLP Metals Data  
Quality Assurance Review, Waukegan Tar Pit, Waukegan IL.**

REF: Analytical TDD: T05-9102-808      Project TDD: T05-9101-019  
Analytical PAN: EIL-0730-AAA      Project PAN: EIL-0730-VAA

The data quality assurance review of 1 tar sludge composite sample collected from the Waukegan Tar Pit site in Waukegan, IL has been completed. Analysis for TCLP volatiles (EPA method 8240/8270), TCLP semi-volatiles (EPA method 8270), TCLP metals, and flashpoint was performed by Analytic and Biological Laboratories, Inc., Farmington Hills, MI.

Note: No quality control data were available for TCLP metals analysis.

The tar sludge composite sample was numbered: TS-4

### Data Qualifications:

I Holding Time: Acceptable

The sample was collected on February 27, 1991 and analyzed for TCLP semi-volatile organics on March 7, 1991, and for TCLP volatile organics on March 12, 1991. This met the required collection to analysis holding time of 14 days for volatiles and 40 days for semi-volatiles. Analysis for TCLP metals was performed within the required holding time of 60 days.

II GC/MS Tuning: Data Not Available

NOT ISSUED, 12/20/91  
DATA OBTAINED  
FROM LAB; NEW  
SAMPLE TAKEN -  
PB 3/25/91

### III Calibration:

Specific calibration information was not included with the data package, however it was verified from information given on the sample analysis reports that volatile and semi-volatile instrument calibration was performed immediately prior to sample analysis.

### IV Method Blank: Acceptable

One method blank was analyzed with the sample for each analysis. There were no contaminants found in the blanks above the contract required detection limit (CRDL).

### V Surrogate Recovery:

For volatile analysis, percent recoveries were all within the established control limits except for surrogate bromofluorobenzene (BFB) which had a recovery of 67.14%. The sample was not reanalyzed and therefore positive results were flagged (J) and non-detects flagged (UJ) as estimated. For semi-volatile analysis, all percent recoveries were within the established control limits.

### VI Matrix Spike/Matrix Spike Duplicates: Data Not Available

### VII Internal Standards Performance:

For volatile analysis, internal standard (IS) area counts were all outside of the control limits of -50% to +100%, as listed below:

<u>Internal Standard</u>	<u>Sample Area</u>	<u>Calibration Area</u>	<u>Area %</u>
Bromochloromethane	65682	23655	277.67
1,4-difluorobenzene	288512	86133	265.30
d5 Chlorobenzene	149220	55811	267.37

Since results have previously been flagged, no action is required. For semi-volatile analysis, all IS area counts were within the established control limits.

IS retention times were all within the +30 second control limit.

### VIII Overall Assessment of Data for Use

The overall usefulness of the data is based on the criteria outlined in "Laboratory Data Validation Functional Guidelines for Evaluating Organic Analyses" (February, 1988) and the Federal Register 40 CFR Part 261.

Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

- J - The associated numerical value is an estimated quantity because the reported concentrations were less than the contract required detection limits or quality control criteria were not met.
- U - The material was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.